



NEWSFILE

250

**PEER-TO-PEER
LEGAL SETBACK**

251

**NEW MICROSOFT
IMAGE EDITOR**

252

**CHINESE WEB
USE CENSORED**

253

**WEB COMPANIES
HELP SCAMMERS**

Apple switches to Intel

Intel is to provide the processors for the next generation of Macintosh computers. Twenty-one years after it first launched the Mac, Apple has announced that it will join the rest of the PC industry and use x86 processors in its Mac range, starting by the middle of next year. Apple's move to the Intel camp "is a seismic shift in the world of personal computing and consumer electronics [that will] rock the industry," according to US analyst Richard Doherty, president of the Envisioneering Group.

The first x86 Macs, or MacTels as Apple CEO Steve Jobs has dubbed them, will be fully PC compatible and able to run both Windows and Mac OS X, but unable to run applications written for older versions of the Mac OS. Today's Macs already use standard PC industry components, with the exception of the PowerPC processor.

Apple senior vice-president Phil Schiller said that, while Apple has no plans to sell and support a Mac that runs both Windows and Mac OS X, "that doesn't preclude someone from running it on a Mac. They probably will. We won't do anything to preclude that." Reports have already appeared on the internet that people have installed Windows successfully on the special pre-release MacTels that Apple has released to selected application developers.

On the other hand, an Intel version of Mac OS X could enable PC owners to install a shrink-wrapped copy of Apple's OS on their PCs, posing a direct threat to Apple's Mac hardware business.

But Schiller explicitly ruled out plans for Apple to restart a Mac clone business, licensing Mac OS X to other PC companies or selling shrink-wrapped copies of Mac OS X for PC owners to install on their computers. "We will not allow running Mac OS X on anything other than an Apple Mac," he said, but he didn't explain how Apple intends to do this, or how it would cope with the inevitable software cracks that will appear on the internet.

This did not stop Dell chairman Michael Dell expressing an interest in offering a range of PCs configured with Mac OS X. "If Apple decides to open the Mac OS to others, we would be happy to offer it to our customers," he wrote in a company email.

Analysts have said that Apple could revitalise a PC industry that is bogged down in an innovation-sapping price war. Despite its small market share, it has popularised new hardware technologies such as



USB, FireWire, WiFi and DVD burners, adding these features before many other companies.

Intel CEO Paul Otellini, who joined Apple CEO Steve Jobs for the announcement, said: "We are so happy that the world's most innovative computer company and the world's most innovative chip company have finally teamed up."

Only a few years ago Apple ran a series of commercials rubbishising Intel x86 processors for being slow and running at high temperatures, and compared them unfavourably with the technologically more advanced PowerPC architecture. Apple's latest move seals the complete triumph of the x86 as the sole processor architecture offered by mainstream PC vendors.

Apple's move surprised virtually everyone in the Mac and financial analyst communities, and raised eyebrows among its competitors in the PC industry. The choice of processor has been a major factor in distinguishing Macs from PCs, starting with Motorola's 68K family and then, after 1994, the PowerPC RISC chips made by Motorola and Apple.

However, in the past few years Motorola has sold its loss-making semiconductor division, while the same division at IBM has struggled to make

a profit. Development of Motorola G4 and IBM G5-class processors, suitable for Apple's desktop and portable ranges, has stalled. Apple is stuck with outdated G4 processors for its portables and Mac mini ranges, and IBM has failed to produce a cool-running G5 for Apple to use in its important PowerBook family of professional laptops.

"We haven't been able to deliver a 3GHz Power Mac or G5 PowerBook," admitted Jobs. "We can envision some amazing products we want to build for you, but we don't know how to build them with the future PowerPC road map." Jobs singled out Intel processors' far superior 'power per watt' as the key reason for the company's switch.

He is now portraying what was essentially a forced move as a bold switch of direction that could re-open the OS wars. With Microsoft facing constant security problems and Longhorn's release date slipping ever further back, Jobs said that Apple would at last be able to compete on a level playing field with Windows PCs, and suggested that Mac sales could ultimately increase from their current two per cent market share.

■ See News Analysis on page 255 for more.



NEWS

BRIEF

■ GOOGLE DEVELOPS 3D SEARCH AND MAPPING

Google has launched a satellite imagery-based mapping environment that combines 3D buildings and terrain with maps and Google search. Google Earth enables users to zoom from space- to street-level views to find geographical information and explore places around the world.

Google Earth can show 3D plans of major US cities and 3D terrain of mountains, valleys and canyons around the world. Integrated Google Local searches enable users to find information on hotels, restaurants, schools, parks and transport and allow for dynamic navigation. It can even present driving directions as a video.

You can access the services through the free Google Earth application at <http://desktop.google.com/download/earth>. It's currently available in beta for Windows users, and a Mac version is in the works.

■ APPLE MERGES THE IPOD AND IPOD PHOTO

Apple has merged the iPod and iPod Photo lines into a single range, all with colour displays for viewing album artwork and photos. The iPod Photo name has been dropped.

In the simplified iPod range a 20GB model costs £209 and a 60GB model costs £299, which is £10 cheaper than before. Apple has dropped the 30GB Photo model.

The iPod U2 Special Edition now has a colour screen and the price has fallen from £249 to £229, while the 1GB iPod Shuffle is £10 cheaper at £89. All prices include VAT. The rejigged iPods include a new Podcast menu with bookmarking and the ability to display Podcast artwork in colour. Apple's new iTunes 4.9 also includes support for Podcasts.

■ GOOGLE RELEASES VIDEO SEARCH BETA

Google has launched a beta version of its video search interface and playback application. Google Video (<http://video.google.com>) enables users to search the growing web archive of TV programmes, primarily from US channels. It searches the closed captioning and text descriptions of all videos in the Google archive for relevant results and can even find sections within videos that match the search terms.

Peer-to-peer firms face legal setback

The US Supreme Court has delivered a resounding blow to the practice of swapping music and video files over the internet, giving Hollywood and the music industry cause to celebrate. Ruling on the MGM v Grokster case, the Court's nine judges decided unanimously that peer-to-peer companies could be held financially liable for anyone who uses their networks to download copyrighted material.

File-sharing companies that hope to defend against future cases will find their position significantly weakened should they rely on the Supreme Court's 1984 ruling that Sony was not responsible for people using their Betamax VCRs to copy content unlawfully. This earlier ruling said it was legal to sell VCRs and, by implication, any technology that could be used to make copies of copyrighted material, if the defendant could establish that the technology had "substantial non-infringing use".

The Supreme Court decided that peer-to-peer companies not only encourage unlawful copying, their entire business models are based on such activities. They are therefore not protected by the 1984 ruling.

"We hold that one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringement," wrote Justice David Souter.

"There is no evidence that either company [Grokster or StreamCast] made an effort to filter copyrighted material from users' downloads or otherwise impede the sharing of copyrighted files," Souter wrote. "Each company showed itself to be aiming to satisfy a known source of demand for copyright infringement, the market comprising former Napster users."

Warner Music CEO Edgar Bronfman welcomed the ruling, claiming that artists will benefit from

the decision. "The most important message from today's historic decision is that progress and innovation do not have to come at the expense of recording artists, songwriters and the people who make their living in the entertainment industry," he said.

"This important decision will allow artists and the creative community to prosper side by side with the technology industry."

The decision could open the way for dozens of suits against file-sharing companies and peer-to-peer BitTorrent sites, which will put many of them out of business. Legitimate, subscription-based services such as Apple's iTunes Music Store and the new legal Napster stand to cash in.

Although the Supreme Court has made its ruling, the case now returns to a lower court, which is obliged to use the ruling as a guideline for its final decision on MGM v Grokster. Analysts point out that BitTorrent may still be protected by the ruling, as it is widely used to distribute open-source software.

Intel makes wireless technology breakthrough

Intel has developed a prototype of an all-in-one wireless chip that supports all three current WiFi standards (802.11a, b and g) as well as the yet-to-be-released 802.11n standard.

Until now, providing this level of compatibility has required several different chips, but Intel's implementation on a single, cheap CMOS chip promises significant price reductions for multiband wireless-enabled portables. Intel will make the chip using the same low-voltage circuitry it has developed for other chips, which should also make it light on battery power.

Intel is certain to include the technology in a future version of its Centrino platform, hastening the day when all PCs come with wireless.

"In the next few years we expect mobile devices will contain several different radios so they can use many different wireless communication networks. Our research points toward a time in the future when one device will use 'smart' antenna systems and a reconfigurable CMOS radio on a single device, making the radio more power efficient, smaller and lower cost. The goal being pursued is the ability to connect to any network, any time, anywhere on any device," said Intel in a statement.

Intel's technology could also be developed to support WiMax, a long-range version of WiFi that is currently emerging. Intel technology strategist Manny Vara said that the

company was ultimately working towards a single chip that would also support Bluetooth and even mobile phone signals.

Eventually Intel would like to create a wireless super-chip that will appear in the whole gamut of electronic goods, from PCs and games consoles to digital music players, TVs and even mobile phones. "We just want all these gizmos that you own to talk with each other," said Vara.

The company did not reveal when it plans to start producing a multiband wireless chip, however. Rival companies such as Texas Instruments and Broadcom are working on similar wireless chips, according to analysts.



New Microsoft image editor to rival Adobe

Microsoft has stepped up its assault on Adobe and launched a free test release of its new image editor. Known by the codename Acrylic, the application is based on software Microsoft acquired with the purchase of Hong Kong-based Creature House in 2003.

Microsoft describes the 77MB download as an "innovative illustration, painting and graphics tool that provides exciting creative capabilities for designers working in print, web, video and interactive media." This sounds like a cross between Adobe's Photoshop and Illustrator products. Acrylic can import and export native file formats from both Adobe applications and export files in Adobe's PDF format.

The release follows Microsoft's preview of Metro, a document format that will appear with Longhorn and challenge Adobe's PDF. Microsoft has marginalised products such as the Netscape browser and RealNetworks' media player in the past, irrespective of their merits, by bundling its own alternatives with Windows.

According to US analyst Gary Hein of the Burton Group, Microsoft's main concern is the Flash multimedia file format, which Adobe will acquire when its takeover of Macromedia is completed later this year. A Macromedia spokesman said that the company does not regard Flash "as a threat to Windows". However, Hein said that Microsoft regards it as a threat regardless, because it has

evolved as a platform-independent environment for which developers write. This is rather like Java or, at one time, Netscape.

Microsoft has yet to produce a direct alternative to Flash, but in the meantime it has decided to open several other fronts against Adobe, whose control of several standards it regards as a strategic challenge.

The pre-beta version of Acrylic (www.microsoft.com/products/expression), which expires on 1st October, requires a Pentium 4 PC running Windows XP with Service Pack 2. Microsoft hasn't revealed when it will release a final version, but early reviews on Microsoft's online forum suggest that there is some way to go before the product is finished.

Epson wins cartridge case

Epson has forced one of Europe's biggest suppliers of third-party inkjet cartridges to withdraw its Epson-compatible units. Environmental Business Products Ltd (EBPL), a UK company that recently received the Queen's Award for Industry, agreed to the move in an out-of-court settlement in June. EBPL, which sells under the Ink Again brand, removed the Epson-compatible products from its website, although it continues to sell cartridges for Canon, Lexmark, HP, Brother and Xerox printers.

Epson sued EBPL in the High Court, alleging that it had infringed some of its inkjet technology patents. EBPL will pay Epson's legal costs and a "substantial payment for damages".

"We have ceased importing and supplying Epson-compatible cartridges because we are not confident of finding Epson compatibles that do not infringe one or more of Seiko Epson's patents or registered designs," said EBPL managing director Pat Stead.

Epson's actions are part of a strategy to fight third-party suppliers, who often supply replacement ink cartridges for as little as a quarter of the price Epson charges. Companies such as Epson, Lexmark, HP and Canon sell printers at a loss and



generate profits by selling expensive inkjet cartridges that work only on their brand of printers.

The thriving third-party market for inkjet cartridges and laser toner threatens this loss-leader model. At various times and in several countries printer manufacturers have taken legal action to eliminate what they claimed were unfair infringements of their technology. The most notorious case was Lexmark v SCC in the US.

Epson recently came to a similar out-of-court settlement in the US with Hong Kong outfit Multi Union Trading, which resulted in 75 of its

inkjet cartridge models being blocked from the US. Epson's legal team is preparing similar legal actions.

"We will continue the enforcement of our intellectual property to protect our innovative products against importers supplying infringing products," said Seiichi Hirano, chief executive of the imaging and information products operations division at Epson.

A quick search of the internet reveals that dozens of companies, including InkClub, BigInk, Vetec and EverestTeam, still sell Epson-compatible cartridges in the UK.

NEWS

BRIEF

■ AMD SETS LAWYERS ON 'IMPROPER' INTEL

AMD has filed a lawsuit against rival chip maker Intel, alleging that it has carried out a campaign to dissuade firms from buying AMD processors.

The suit, filed in Delaware, USA, claims that Intel has used "improper" subsidies to gain sales and has threatened to retaliate against companies that use or sell AMD products. AMD names 38 firms that it claims have been victims of coercion, including large-scale PC makers, small systems builders and retailers, "through seven types of illegality across three continents". Intel's methods are said to include cash payments, discriminatory pricing and marketing subsidies.

■ HI-TECH UK COPS CATCH PHISHING GANG

Two men have been sentenced for their part in a multimillion-pound crime syndicate. As part of an investigation into an international crime ring specialising in identity theft through phishing campaigns, the National Hi-Tech Crime Unit helped arrest US citizen Douglas Havard and British Lee Elwood in Leeds and Glasgow. Havard and Elwood have been sentenced to six and four years respectively.

The pair used identity and credit card details gathered by organised gangs in Eastern Europe through phishing scams. These schemes dupe victims into giving away security credentials through spoofed banking and finance sites. When police raided residences used by the pair they found reams of forged ID documents, forged travellers cheques and even credit card holograms.

■ EBAY GIVES SELLERS THEIR OWN SHOP FRONT

eBay aims to boost the number of stores on its site by allowing sellers to open customised shop fronts. ProStores is available to small businesses and Power Sellers, enabling them to set up a shop front with their own branding, categories and web address, using eBay's shopping cart, secure checkout and shipping.

The basic service costs \$6.95 (around £3.85) per month. This can be extended to include tools for inventory management and enhanced merchandising options.



NEWS

BRIEF

STORM ERUPTS OVER ANTI-SPAM SAFETY BAR

Microsoft is to add a safety bar to its Hotmail accounts that warns users if email received might be spam. However, many view this as a way for Microsoft to force firms to adopt its anti-spam technology.

Domains known to be spam sources are blocked, but for the system to work, ISPs and other firms with mail servers must have a certificate that identifies their mail servers. Many fear that without a sender policy framework (SPF), their mail will be marked as spam.

Key parts of the anti-spam code are Microsoft's intellectual property. Many worry that net-wide adoption would place Microsoft's code alongside the SPF on every mail server in the world.

CREDIT HACK EXPOSES MILLIONS OF ACCOUNTS

A breach in a data-processing company's security has left 40 million credit cards vulnerable to fraud. MasterCard says that it identified a security breach on a machine belonging to Tucson-based company CardSystems Solutions. CardSystems says the incident happened in late May and it subsequently contacted the FBI as well as MasterCard and Visa.

MasterCard described the breach as a set of "vulnerabilities [that] allowed an unauthorised individual to infiltrate their network and access the cardholder data". However, it is unclear whether any theft has resulted.

SKY ADDS DSL SERVICE

Sky is planning to offer movies and sport over the internet to its premium subscribers later in the year. Customers who pay £41 a month to access the broadcaster's entire programming will get the free service, which will be delivered over a broadband internet connection.

Sky World, Sky Sports World and Sky Movies World subscribers will be able to view programmes on a PC or through the Sky+ box on a TV. The launch is expected to coincide with an upgrade to the Sky+ box, Sky's combined decoder and personal video recorder.

Initially, sports watchers will be able to download only highlights, interviews and news. Film fans will have a choice of 200 movies.

MSN and Yahoo! help Chinese censors

The Chinese government has ordered that all websites and blogs in the country be registered or face closure in an attempt to banish online dissent – and Microsoft and Yahoo! are helping.

The Ministry of Information website said: "The internet has profited many people, but it also has brought many problems, such as sex, violence and feudal superstitions and other harmful information that has seriously poisoned people's spirits."

Cracking down on freedom of expression is nothing new in China, where the government keeps a tight lid on all media. But bloggers and freedom advocates such as Reporters Without Borders are furious that Microsoft and other western groups are helping the Chinese authorities block access to information.

Microsoft's MSN China subsidiary crippled its search engine so that people entering such search words as 'democracy', 'freedom' and 'human rights' encounter a dialog box that warns: "Prohibited language in text. Please delete." MSN Spaces also stops Chinese bloggers using such words.



Reporters Without Borders say Yahoo! has also cooperated with the Chinese authorities. "The lack of ethics on the part of these companies is extremely worrying," a spokesperson said. "Their management frequently justifies collaboration with Chinese censorship by saying that all they are doing is obeying local legislation."

"Does that mean that if the authorities asked Microsoft to provide information about Chinese cyber dissidents using its services, it would agree on the basis that it is 'legal'?"

Microsoft's global sales and marketing director for MSN, Adam Sohn, defended his company's position. "We're in business in lots of countries," he said. "I think every time you go into a market you are faced with a different regulatory environment and you have to make a choice as a business. Even with filters, we're helping millions of people communicate, share stories, share photographs and build relationships. For us, that is the key point here," he explained.

Pay online with Google

Google's latest plans for online domination include a payment system that will compete with PayPal, the eBay subsidiary that currently holds the top position in online commerce.

Details of the online payment scheme have yet to be revealed, but an analyst report from UBS indicates that the search giant intends to enter this market. Google is looking to lower its dependency on advertising revenues, which are vulnerable to economic downturns. The company's share of online searches has fallen since Yahoo! and Microsoft boosted their search offerings.

In early June, Piper-Jaffray analyst Safa Rashtchy revealed that Google is testing an online payment system. Like PayPal, Google would make small handling charges on transactions. Rashtchy also claimed that Google plans to launch a rival to Craig's List,

the popular online listings service, 25 per cent of which is owned by eBay.

Google declined to comment on the claims, which were also reported in the *Wall Street Journal*. Nevertheless, the reports were enough to wipe three per cent off eBay's share price in one day.

"It could be a big negative for eBay if it happens," said Rashtchy. PayPal, which eBay bought for \$1.3 billion (around £700 million) in 2002, generates nearly a quarter of eBay's revenues. eBay's shares have dropped by over 40 per cent since the start of the year, as growth in its core auction sales has slowed. The company is increasingly reliant on PayPal.

However, Google's share price was also marked down by 2.2 per cent, reflecting the widespread belief that PayPal will be a tough competitor even for Google.

Worldwide, PayPal has 72 million accounts, more than American Express's 65 million. PayPal has accounted for \$19 billion (around £10 billion) in transactions and is growing at 44 per cent. Yahoo! and Citibank abandoned their online payment services in the face of PayPal's dominance, as did eBay before buying PayPal.

Still, Google's high share price gives it plenty of financial ammunition with which to fund an attack on PayPal's business. It is worth over \$80 billion (around £44 billion) and is the world's most valuable media company, ahead of Time Warner, Yahoo! and Disney.

Google's new service, which analysts have dubbed Google Wallet, will benefit from its association with the Google search engine, which is still the most popular on the web.



Web companies give scammers a hand

Aspate of recent blunders by web and email companies has given scammers a free rein on the internet.

Fraudsters have had a field day on the net because of inadequate responses from web and email hosting companies, including giants such as Microsoft and Google. Because of poor planning, lack of resources and simple ignorance, the scammers' fake and fraudulent websites have been left untouched. Furthermore, email accounts and websites used by scam fighters are being shut down.

International crime gangs have set up fake and fraudulent bank, courier and non-governmental agency websites to add credibility to their schemes to steal money from random internet victims. Such sites are usually illegal as it is a crime in most areas to pretend to be a bank or other regulated financial institution.

It is also a crime to run a Ponzi scheme, an illegal pyramid investment that pays out only as long as new incoming investment is being attracted. All these scams are also against the Acceptable Use Policy (AUP) of hosting companies.

Such sites should be shut down as soon as any hosting company has received an abuse report and has had the opportunity to verify the claim by inspecting the site's contents.

However, many hosting companies appear to be unaware of these sites and don't understand the abuse reports when they receive them. Some companies don't have working mechanisms to receive abuse reports, while others haven't given their abuse departments adequate resources to undertake the workload necessary to close them down.

Microsoft admitted that in the period from 22nd December 2004 to 9th April 2005, many errors were made handling complaints about fraudulent sites hosted on MSN Personal Address (MPA) domains. Among the most important errors were repeated failures to understand the nature of complaints and, on 4th March, the discovery of a technical configuration error that meant abuse complaints had not been received.

"We did look into that process and found that there was a break in our process; one link in the process was not working properly. Basically, the customer complaint was not being received," said Rebecca Thompson, MSN Global PR manager. On 11th March, Dustin Swalley at Microsoft began taking action against fraudulent sites. He got the abuse reporting mechanisms fixed over the following month.

During its beta phase, Google's Gmail staff were initially unaware of

warning accounts. These email accounts are used to warn fraud victims that they are being targeted by fraudsters. Gmail spam detection systems shut these accounts down.

"It has been brought to our attention that certain individuals or organisations make efforts to warn actual or intended victims of potential scams," said Ema Linaker, UK and Ireland PR for Google.

"We want to aggressively combat spam. To make measurable changes and improvements that can benefit many users, we rely on our technology to create automated detection mechanisms and on our engineering team to consistently monitor and improve these technologies."

Many other hosting companies have failed to understand the problem or to take appropriate action, or both. At the time of writing, iPowerWeb was hosting three sites that advertise Ponzi schemes. But instead of shutting these sites down, the company actually closed down one of the leading crime-fighting anti-scam sites (www.cattysdaq.com).

Computer Shopper contacted iPowerWeb Marketing and Sales Manager Warren Lanier to comment, but he failed to provide answers to our questions.

Microsoft plans to face the music online

Microsoft is to launch its own online music subscription service later this year. The move will put more pressure on RealNetworks and Napster, which are already facing a price war with Yahoo! over its recently launched subscription service.

Microsoft's music store currently only sells tracks for download. However, the company believes a cheap monthly subscription service may be the best way to overturn the dominance of Apple's iTunes Music

Store, which accounts for over 75 per cent of legal downloads.

US sources report that Microsoft is considering an even more audacious attack on iTunes. A new music download exchange permits users to download a Windows Media Audio (WMA) version of any track they have downloaded from the iTunes Music Store. Currently tracks downloaded from iTunes play only on Apple or HP iPods, as Apple has refused to license its proprietary Digital Rights

Management (DRM) software. Microsoft's plan could break Apple's hold over people who've invested in iTunes-formatted music and allow them to play WMA-formatted versions on non-Apple music players.

How keen record companies are to let Microsoft supply copies of music with Apple's copy protection removed remains to be seen. Microsoft could find it hard to prove that the original iTunes tracks were legally purchased in the first place.

NEWS

BRIEF

■ MICROSOFT CLONES BITTORRENT

Microsoft is developing an alternative to BitTorrent, the high-speed peer-to-peer software that powers large-scale video sharing using broadband connections. But with the Microsoft version, codenamed Avalanche, downloading is not possible without a "publisher's certificate". In other words, it will have copy protection technology.

Microsoft sees the technology being applied to video and TV on-demand, as well as the distribution of films to buy or rent.

■ HRH JOINS IPOD CROWD

First it was US President George Bush, now the Queen has joined the iPod-toting classes. Her Majesty despatched one of her staff to buy a silver iPod mini from the Regent Street Apple Store, located in a building and on land that she owns.

"The Queen loves music and was impressed by how small and handy the iPod is," a royal insider told *The Sun*. "The Queen does a lot of travelling and an iPod is a very convenient way of listening to music while on the move." Her favoured playlist was not reported.

■ EMAIL ATTACKS ON KEY UK SYSTEMS

The National Infrastructure Security Coordination Centre (NISCC) has issued a report claiming that almost 300 key UK government departments and commercial organisations are being targeted by a sophisticated wave of email-borne attacks. The NISCC says the attacks have been in existence for some time, but there has been a significant surge in the amount of email involved.

The attacks take the form of Trojans attached to emails, often with spoofed sender addresses and content designed to tempt victims into opening an attachment or visiting a website to trigger the installation of malicious code.

The attacks seem to be designed to collect confidential information such as passwords and system and network details. The Trojans also contain backdoor components that can connect to internet relay chat (IRC) channels, allowing attackers to upload files and download additional code.



NEWS

BRIEF

■ IBM BLUEGENE/L TOPS FASTEST COMPUTER LIST

IBM confirmed its position as maker of the world's fastest computers by taking the top two spots in the annual Top 500 list, issued by the 20th International Supercomputing Conference (ISC2005) in Heidelberg, Germany.

The world's fastest computer is the BlueGene/L System, which IBM and the National Nuclear Security Administration (NNSA) developed and installed at the Lawrence Livermore National Laboratory in California. However, in the ensuing 12 months, the computer, which simulates nuclear explosions among other things, has doubled in size.

According to recent Linpack benchmarks, BlueGene/L hit 136.8 teraflops. The bad news for competitors is that the system is expected to double in size again, leaving it firmly at the top of the list next year and probably beyond.

At number two is another recently commissioned BlueGene, which was built for IBM itself at the Thomas J Watson Research Centre in Yorktown, New York. It clocks up 91.2 teraflops. Third place went to the Columbia system, built by SGI and installed at the NASA Ames Research Centre. This racked up 51.87 teraflops.

■ NEW YORK SENATOR URGES GAME BOYCOTT

A US senator has proposed that retailers boycott a new video game ahead of its launch this summer. The move is guaranteed to make 25 to Life a bestseller and could revive the fortunes of its publisher Eidos, which has struggled to find another hit after the Tomb Raider series.

In the game, reports Reuters, the player can choose to take either the role of the gangster or the police. It is the former option that has upset Democrat Senator Charles Schumer. "The bottom line is that games that are aimed and marketed at kids shouldn't desensitise them to death and destruction," he said.

The game is similar in many ways to Grand Theft Auto: San Andreas, last year's runaway bestseller. Set in an inner-city gangland, players have a choice of weapons and choose their gang colours. The main character is Andre 'Freeze' Francis, who is described as a "good-hearted drug dealer".

Father of the microchip dies

Jack Kilby, who created the first ever microchip by building a "monolithic integrated circuit" on a single piece of semiconductor, died in June aged 81.

Kilby had only just joined Texas Instruments (TI) in the summer of 1958 when he had the idea of building an electronic circuit in which all the components, both active and passive, were fabricated on a single piece of semiconductor. His first effort, using borrowed and improvised equipment, was the size of a paper clip.

This powerful approach eliminated the need to wire up individually the complicated interconnections between the electronic components that made up an integrated circuit. Wiring these interconnections by hand was an expensive and unreliable process, as a

single faulty interconnection would render the entire circuit useless.

Although early microchips also suffered a high rate of faults, they were so cheap to produce, using a process that etched a circuit on a semiconductor wafer, that this method was still more economical. The approach also lent itself to astonishing levels of miniaturisation.

Despite his achievement, Kilby is relatively unknown today compared with Robert Noyce, who cofounded Intel, the world's largest semiconductor company. Noyce was also credited with inventing the microchip independently in January 1959 (six months after Kilby), while working at Fairchild Semiconductor. TI was first to patent the idea, but Noyce's patent was also awarded as his design differed in its implementation. In the end, Noyce's

approach proved better suited to mass-producing microchips.

After years of legal battles TI and Fairchild agreed to cross-license their patents and both Kilby and Noyce were awarded the US National Medal of Science. Kilby won the Nobel Prize for physics in 2000 and, at the time of his death, held over 60 patents. His other inventions include the handheld calculator and the thermal printer used in portable data terminals.

"In my opinion, there are only a handful of people whose works have truly transformed the world and the way we live in it: Henry Ford, Thomas Edison, the Wright brothers and Jack Kilby," said TI chairman Tom Engibous. "If there was ever a seminal invention that transformed not only our industry but our world, it was Jack's invention of the first integrated circuit."

Scientists get one step closer to teleportation

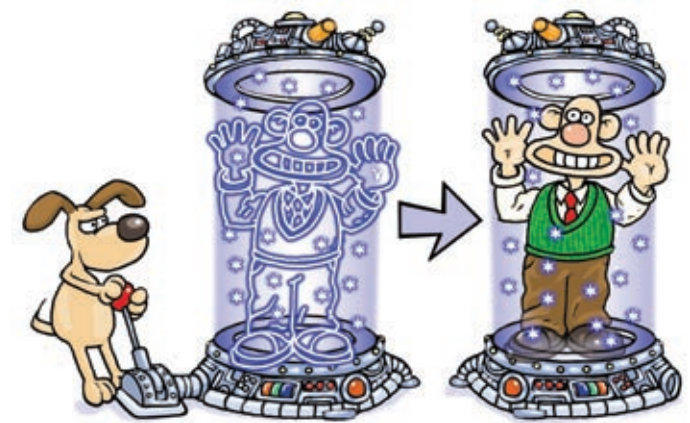
US scientists are developing a technology that they claim could eventually teleport objects over the internet.

Teleportation is the process of moving objects from one place to another more or less instantaneously, without the aid of conventional transportation. The transporter room in *Star Trek* is probably the best-known example.

Australian scientists have already teleported laser light over short distances, but this is a quantum-level effect that is impossible to reproduce on a large scale.

Todd Mowry and Seth Goldstein at Pennsylvania's Carnegie Mellon University are working on a system that at least simulates the effects of teleporting everyday objects by using claytronics, a sort of intelligent clay modelling. "We thought that a good analogy for what we were going to do was claymation, something like the *Wallace and Gromit* shows," Dr Mowry told the BBC World Service.

"When you watch something created by claymation, it is a real object and it looks like it's moving itself. That's something like the idea



we're doing... in our case the idea is that you have computation in the 'clay', as though the clay can move itself," he said. Movements would replicate those of a remote subject covered in sensors, and the vector information and even the shape of the subject would be transmitted over the internet and recreated in the object at the target site.

"That information is turned into some representation: a three-dimensional version of an MPEG file," said Mowry. "So if it's a dog, and you

want the dog to move, it will actually move itself. But it is a physical object in front of you, it's not just a picture, a hologram or something like that."

It's not quite teleportation then, or even a *Star Trek* holodeck, and so far the scientists have only worked on objects the size of a ping-pong ball. However, Goldstein predicts that one day objects will be created using "nano-dust" – minute particles that can be programmed to form larger objects and move in a lifelike manner.